

Air Safety Investigations Aircraft Incident/Accident Technical Report

Aircraft Incident/ Accident Information	Year: 1956	Make: Cessna	Model: 180
	Serial number: 32331		Registration: N4934A
Location: Townsend, MT		Date: 01-02-19	Time: 1650 MST
Aircraft Owner		Aircraft Operator	
Kestrel Leasing LLC [REDACTED]		[REDACTED]	
Report Information			
Senior Air Safety Investigator: Peter J. Basile		Report #: ASI-19-AK-T	Report date: 06-05-19

Airframe

Impact Sequence and Airframe Structure

The leading edge of the vertical stabilizer sustained two powerline impacts. One powerline penetrated the leading edge and struck the forward spar. The other powerline cut completely through the vertical stabilizer and severed the top 2.5 feet of the surface. The powerline struck the leading edge of the rudder and separated it from the structure. The leading edge of the vertical stabilizer exhibited powerline arcing and the leading edge of the rudder had multiple powerline cable strand striations. The aircraft impacted the ground in a nose down attitude and sustained lower forward cabin compression damage.



On-site Photographs taken by the Broadwater County Sheriff's Department

Airframe Systems

Flight Control System Information		
Control lock: Undetermined		
Flight Control Cable Continuity		
Ailerons: Established	Elevators: Established	Rudder: Established
Aileron tab: Not applicable	Elevator tab: Established	Rudder tab: Not applicable
Flap and Trim Positions		
Flap indicator: Up	Flap handle: Up	Flap actuator: Up
Elevator trim: Indicator: Undetermined	Actuator: Undetermined	

Remarks:

Control cable continuity was established for all flight controls. The fuel selector valve was on the RIGHT tank. The wings had minor leading edge impact damage. The instrument panel and rudder pedals were separated from the fuselage by recovery personnel and remained attached to the firewall and engine.



Instrument Panel

Airframe Fuel System Condition, Controls, and Read Outs		
Fuel strainer screen: Clean	Fuel strainer bowl: See below	
Main fuel tank gauge:	Left: Empty	Right: Empty
Fuel selector handle: See below	Fuel selector valve: Right	

Remarks:

The fuel selector handle was found near the "RIGHT" position. The fuel selector shaft was found fractured at the fuel selector valve near the 2-o'clock position. Air was blown through the valve and fuel sprayed from the right tank fuel line. The fuel strainer assembly remained attached to the firewall and was drained and disassembled. The fuel collected from the fuel strainer assembly was light blue in color and contained minor amounts of dirt and debris; one drop of water was detected in the fuel sample using Sar-Gel water detection paste.

Landing Gear System Condition and Controls				
Gear position:	Nose: Fixed		Left: Fixed	Right: Fixed
Environmental System Controls and Read Outs				
Cabin heater: On		Cabin vent: Off		Defrost: Not applicable
Air conditioner: Not applicable		Oxygen system: Not applicable		Oxygen quantity: Not applicable
Icing System Information and Switches				
Certified into known icing? No			De-icing boots installed? No	
Pitot heat: Undetermined			Stall heat: Not applicable	
Anti-ice:	Surface: Not applicable		Propeller: Not applicable	Windshield: Not applicable
ELT Information				
Installed? Yes	Manufacturer: Narco Avionics		Model: ELT-10	Type: P, AP, AF
Serial number: 45322		Battery due date: 10-19		Armed: Undetermined
Activated: Undetermined				

Remarks:

None.

Cabin and Equipment/Furnishings

Restraint System Information						
Seat	Occupied	Restraint type	Restraint used	Condition	Manufacturer	2nd seat stop
1	Yes	3-Point	Yes	Pulled from overhead	See below	Yes
2	Yes	3-Point	Yes	Pulled from inboard lap	See below	No
3	No	2-Point	N/A	Normal	Undetermined	Not applicable
4	No	2-Point	N/A	Normal	Undetermined	Not applicable

Seat Condition Information					
Seat	Orientation	Feet intact	Back intact	Base intact	Rail intact
1	Forward facing	Yes	Yes	Yes	Yes
2	Forward facing	Yes	Yes	Yes	Yes
3	Forward facing	Yes	Yes	Yes	Not applicable
4	Forward facing	Yes	Yes	Yes	Not applicable

Remarks:

The 3-point dual shoulder harness STC installed restraint systems were manufactured by AmSafe. The left lap belt remained anchored to the floor assembly. The left shoulder harness anchor bolt was found pulled from the structure. The right inboard lap belt was found separated from the floor assembly. The right shoulder harness remained attached to the cabin overhead.

Instrument Panel

Navigation Instruments							
Analog primary instruments				Autopilot type: None			
Suction gage: Undt		Magnetic compass: ~ North		Clock: Undt			
	Left side			Left side			
Airspeed:	~172 knots		Turn coordinator (airplane):	Full right			
Attitude (pitch):	~10° down		Turn coordinator (ball):	Full left			
Attitude (roll):	~10° right		Heading indicator:	~290°			
Altimeter:	4,250'		Heading "bug":	N/A			
Altimeter setting:	30.07		Vertical speed indicator:	2,000' up			
Communication and Navigation Radios							
Radio	Control	Active frequency	Stand-by frequency	Radio	Control	Active frequency	Stand-by frequency
Com 1:	On	Digital	Digital	Com 2:	N/A	N/A	N/A
Nav 1:	N/A	N/A	N/A	Nav 2:	N/A	N/A	N/A
Obs 1:	N/A			Obs 2:	N/A		
Transponder:	Mode: Undt		Active code: Undt		Stand-by code: N/A		
Electrical Switch Positions							
Master battery: Off		Master alternator: On		Avionics 1: On			
Lighting Switch Positions							
Navigation: On		Rotating Beacon: On		Landing: Off			
Taxi: Undetermined		Strobe: Not applicable		Instrument: Undetermined			
Ignition Switch Position							
Key: Off							

Remarks:

None.

Powerplant Description

Engine Instruments					
Hour meter:	Undt	Tach RPM:	Digital	Tach hours:	Digital
Oil press:	Digital	Oil temp:	Digital	EGT:	Digital
Fuel press:	Digital	Fuel flow:	Digital	Ammeter:	Digital
				Manifold press:	Digital
				CHT:	Digital
				Voltmeter:	Digital
Engine Control Positions					
	Cockpit	Engine		Cockpit	Engine
Throttle:	Out ~2"	Undt	Cowl flaps:	Out ~0.75"	Undt
Mixture:	Out ~1.5"	Undt	Carburetor heat:	On	Undt
Propeller:	Out ~0.75"	Undt	Primer:	In/fractured	
Engine Condition					
Engine attached to airframe:	Partially	Propeller attached to engine:	Yes		
Engine compression:	Yes	Valve train continuity:	Yes		
Vacuum pump drive shaft:	Intact				
Engine Fuel System Condition					
Fuel pump drive shaft:	Not applicable	Carburetor inlet screen:	Clean		
Magneto Condition					
Left magneto attached:	Yes	Right magneto attached:	Yes		
Left magneto spark:	All leads	Right magneto spark:	All leads		
Spark Plug Condition (per Champion Check-A-Plug Card)					
	1	2	3	4	5
Top	Normal	Normal	Normal	Normal	Normal
Bottom	Not examined	Not examined	Not examined	Not examined	Not examined

Remarks:

The engine remained attached to the firewall and the propeller assembly remained attached to the engine. Compression and continuity were established on the modified P-Ponk engine. The magnetos produced spark at all leads. The induction inlet airbox was crushed and the carburetor remained attached. The carburetor was disassembled; residual fuel was found in the bowl and the inlet screen was clean. The exhaust assembly had impact damage. The oil sump was crushed. The oil filter was cut open and no metallic material was observed. A bore scope examination of the cylinders did not reveal any preimpact abnormalities.

Propeller

The 3-bladed McCauley propeller remained attached to the engine; one blade was impact separated. All 3 blades remained relatively straight and exhibited little to no ground impact damage.

Research & Testing

None.